



**RHK Technology**  
Imaging the Future of Nanoscience

# PMC 100



Piezo Motor  
Control Electronics

The SPM Standard in Flexibility and Performance

Position control and nanoscale motion of system components in scanning probe instruments often require the use of highly specialized inertial piezo motors. These motors require a very sudden change in voltage to overcome strong frictional holding forces between the piezo and the secondary component. This requires special high voltage amplifiers with very fast slew rates. The RHK PMC 100 Piezo Motor Controller is designed to provide such a signal and can be directed to nine different outputs to operate nine separate motors.

The PMC 100 Controller package includes:

- PMC 100 control electronics
- Remote control handset
- Computer interface (software)
- Ethernet hub
- 10-baseT cables

## Specifications

### PMC 100 Specifications

#### Inputs/Outputs

**Power:** 100, 120, or 230 VAC 50/60 Hz

**High Voltage Output:** User Adjustable From  $\pm 400\text{V}$  to  $\pm 10\text{V}$   
10 pin Amphenol Connector

**Slew rate:** 200 ns at  $0.001 \mu\text{f}$  load capacitance (+400V to -400V)  
800 ns at  $0.01 \mu\text{f}$  load capacitance (+400V to -400V)

**Pulse rate:** .67 Hz - 1 KHz

- 10 pin Amphenol Connector
- Output Connector

#### External Control Inputs:

10-pin Connector - handset control on front panel

Ethernet communication port

- Computer control interface
- Adapts to any network topology

2 BNC inputs: (1) TTL trigger control of output signal for z approach  
(2) HV Disable / all relays off

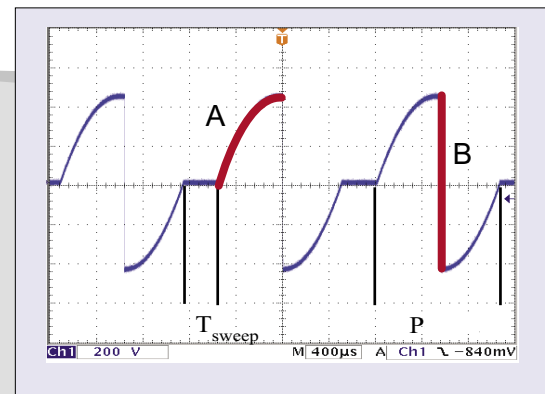
#### Size and Weight:

19" (48cm) wide x 5.25" (13cm) high x 17" (43 cm) deep 35 lbs (16 kg)

The waveform output is shown in the diagram to the left. The slow rise segment (A) expands the piezo element, then the rapid drop (B) contracts the piezo suddenly, overcoming the static friction between it and the moving component. Speed of inertial motion is controlled by varying the time(t) between sweeps or the period(p) of cycle.

#### Additional Features

- Designed to operate independently or with RHK SPM 1000 control system
- Parameters for each motor can be independently configured
- Remote operation capability over ethernet
- Outputs shorted to ground when not active
- Front panel LED indicates output fault



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